

State of Washington **DEPARTMENT OF FISH AND WILDLIFE**

Mailing Address: 600 Capitol Way N Olympia, WA 98501-1091 (360) 902-2222, TDD (360) 902-2207 Main Office Location: Natural Resources Building 1111 Washington Street SE Olympia, WA

May 31, 2006

Kelly McLain Aquatic Pesticide Program Supplemental Department of Ecology P.O. Box 47600 Olympia, Washington 98504-7600 NPDES Permit WA0041009 Annual Report

Dear Ms. McLain:

Enclosed are Washington Department of Fish and Wildlife's Post-Treatment Discharge Monitoring Reports for Rat Lake and its connecting waters - Reflection (Mouse) Pond, Green Lake, and Spectacle Lake (Okanogan County), and Burke Lake and Quincy Lake (Grant County), treated with rotenone in the spring or fall of 2005, along with all other pertinent documentation as mandated by the reporting requirement under S3.A of NPDES Waste Discharge Individual Permit Number WA0041009.

Also enclosed is a copy of the amended FSEIS for the lakes proposed for treatment in the fall of 2005 and the Spring of 2006, including all SEPA comments, results and decisions, as well as the 2006-2007 Lake and Stream Rehabilitation Proposal list.

Please feel free to contact me at 360-902-2711 or email anderjda@dfw.wa.gov with any questions.

Sincerely,

Jon. Anderson

Resident Native Fisheries Manager

Enclosures

cc: Jim Uehara, WDFW Olympia

Post – Rehabilitation Treatment Discharge Monitoring Report

2005

POST-TREATMENT REPORTS:

RAT LAKE – REFLECTION (MOUSE) POND (OKANOGAN CO.) GREEN LAKE (OKANOGAN CO.) SPECTACLE LAKE (OKANOGAN CO.) BURKE LAKE (GRANT CO.) QUINCY LAKE (GRANT CO.)

SEPA FSEIS ADDENDUM

SEPA ADDENDUM 31 AUGUST 2005 SEPA ADDENDUM 19 SEPTEMBER 2005 2005 LOWLAND LAKE PROPOSALS LAKE MANAGEMENT PLANS PRE-REHABILITATION PLANS

POST TREATMENT DISCHARGE MONITORING REPORT

1. Lake Name: Rat, including connecting waters (Mouse Pond)

2. County: Okanogan

3. Section: 22 Township: 31 Range: 24E

4. **Date(s) of Treatment:** May 10-11, 2005

- 5. Purpose of Treatment: Rat Lake is located north of Brewster, Washington and provides an opportunity for fishermen in lower Okanogan County to have a production trout lake in close proximity to town. Rat Lake is managed as a year round fishery for rainbow and brown trout, which includes a winter bait season and summer catch and release season. The recent illegal introduction of brown bullheads to the lake had severely compromised the trout fishery. The presence of the bullheads created a competitive environment, so that fingerling trout plants had little or no chance of survival to yearlings. The only remaining means to restore the lake to trout only production was to chemically remove the bullhead population and replant with rainbow and brown trout juveniles.
- 6. Name of Licensed Applicator: Jeff Korth
- 7. Lake Description: Surface Acres: 76 Volume: 3,103 Acre Feet:

Maximum Depth: 71 Average Depth: 41

8. Stream Description: Width: N/A, Length: N/A

Flow Rate of Stream/Outlet (cu. ft. per sec.): N/A

Volume and Weight of Water Treated (gallons, pounds): 8,438,074,784 lbs.

- 9. Name of Fish Toxicant Product Used: Rotenone Fish Toxicant Powder, Prenfish Fish Toxicant Liquid
- **10. Description of Treatment Method(s):** Powder and liquid both applied by pumper boats, which mixes chemical with water prior to broadcasting into lake
- 11. Quantity of Fish Toxicant used (pounds and/or gallons): 16,775 lbs of powder and 31 gals of liquid
- **12.** Concentration of rotenone in formulated Rotenone product: 7.7% in powder and 5.0% in liquid
- 13. Concentration of active rotenone in water (ppm): 3.0 ppm

14. Water conditions/quality: We are notifying the Department of Ecology, under S3.E of Non-Compliance by WDFW of the monitoring requirement of S3.A.14. The water conditions were collected in Rat Lake on 10 May 2005, the day of the treatment, but the field data were rendered unreadable. We discovered this discrepancy on 15 May 2006, and took the water quality samples on 17 May 2006 with the following results:

Depth (m)	Temperature °C	pН	DO
0.8	18.91	8.81	6.32
1.5	15.84	8.53	5.85
2.7	12.09	8.51	6.31
4.5	10.86	8.13	5.18
6.3	9.51	7.82	3.61
9.1	6.56	7.61	2.22

- 15. Detoxification of rotenone treated water (if required): Description of detoxification methods/equipment; potassium permanganate application rate (pounds per hour); flow rate of stream/outlet (cu. ft. per sec.); estimate of average concentration (ppm): N/A
- 16. Description of lake inlets(s)/outlet(s) and any temporary water control measures (if required): A portion of the inlet (Whitestone Creek) was treated with liquid rotenone, which then flowed into the connecting waters (Mouse Pond) and down into Rat Lake, which has no outlet.
- 17. Period of Toxicity (duration of water quality reduction): 4-6weeks
- **18. Eradicated fish species:** brown bullheads, black crappie, smallmouth bass, eastern brook trout, rainbow trout
- 19. Results of pre and post treatment monitoring: Prior to the treatment, the lake was sampled for various parameters including temperature, pH, and zooplankton. Post sampling included VOC and Semi-VOC both within 24 hours of treatment and 4 weeks post-treatment.
- 20. Impact on non-target organisms: None observed
- 21. Brief description of treatment/detoxification and other comments: The treatment began at 0900 on May 10, 2005 and was completed by the next day when the airboat was used to treat the shallow areas. Treatment consisted of 1.5 ppm the first day and 1.5 ppm the second day. Both days it was cool and overcast with the wind picking up in the afternoon to aid in mixing the chemical. There was a small inlet stream entering the upper end of Rat Lake (Whitestone Creek), which was treated with liquid rotenone, allowed to mix with the connecting waters (Mouse

Pond) and then flow into Rat Lake, which had no outlet. Brown bullheads began surfacing the first day, but were still breathing due to the lower treatment dosage. By the end of the next day, thousands of brown bullheads along with a few hundred smallmouth bass and black crappies, and less than fifty trout were washed up along the shoreline, a result of the second day dosage (3 ppm total). There were very few yearling trout from the previous year's plant indicating the necessity of the chemical treatment to remove the bullheads and reduce competition with trout fingerlings. A bioassay with 5 rainbow trout was conducted at 6 weeks and all fish survived, indicating that the lake had detoxified. During July-Sept of 2005, there were 12,000 rainbow and 4,000 brown trout planted into Rat Lake and 1,000 triploid brook and 500 tiger trout planted into the upper connecting waters (Mouse Pond).

- 22. Copy of the amended FSEIS for lakes/streams treated during the reporting period including all SEPA comments, results and decisions
- 23. List of lakes/streams proposed for treatment during the upcoming year.

ESN NORTHWEST

INVOICE

ESN Northwest

Tax ID #91-1510006

Phone: (360) 459-4670; Fax: (360) 459-3432

INVOICE # S50513-1 INVOICE DATE May 17, 2005 **CLIENT JOB#**

BILL TO:

WA Dept. of Fish & Wildlife

600 Capitol Way North Olympia, WA 98501

ATTN:

Jim Uehara

(Bob Jateff, Project Manager)

PROJECT:

Rat Lake Rehabilitation

Washington

DATE	QUANTITY	DESCRIPTION	UNIT COST	TOTAL
5/13	1	8260 - water	\$110.00	\$110.00
5/17	1 1	8270 - water	\$270.00	\$270.00
	,	·		
		Tota	I Amount Due	\$380.00

TERMS: NET 30 DAYS

PLEASE SEND REMITTANCE TO THE ADDRESS BELOW

ESN Northwest 800 Sleater-Kinney SE, PMB #262 Lacey, WA 98503-1127

ESN Job Number: Client: Client Job Name:

S50513-1 WDFW RAT LAKE REHABILITATION

8260, μg/L		MTH BLK	LCS S	SAMPLE 1	MS	MSD	RPL
Matrix	Water	Water	Water	Water	Water	Water	
	Reporting						
Date analyzed	Limits	05/13/05	05/13/05	05/13/05	05/13/05	05/13/05	
Dichlorodifluoromethane	1.0	nd		nd		•	
Chloromethane	1.0	nd		nd			
Vinyl chloride	0.2	nd		nd			
Bromomethane	1.0	nd		nd			
Chloroethane	1.0	nd		nd			
Trichlorofluoromethane	1.0	nd		nd			
Acetone	10.0	nd		nd		•	
1,1-Dichloroethene	1.0	nd	85%	nd	92%	91%	19
Methylene chloride	10.0	nd		nd			
Methyl-t-butyl ether (MTBE)	1.0	nd		nd			
trans-1,2-Dichloroethene	1.0	nd *		nd			
1,1-Dichloroethane	1.0	nd		nd			
2-Butanone (MEK) cis-1,2-Dichloroethene	10.0 1.0	nd nd		nd			
2,2-Dichloropropane	1.0	nd		nd			
Chloroform	1.0	nd		nd nd			
Bromochloromethane	1.0	nd		nd			
1,1,1-Trichloroethane	1.0	nd		nd			
1,2-Dichloroethane	1.0	nd		nd			
1,1-Dichloropropene	1.0	nd		nd			
Carbon tetrachloride	1.0	nd		nd			
Benzene	1.0	nd	94%	nd	99%	102%	3%
Trichloroethene (TCE)	1.0	nd	90%	nd	94%	98%	4%
1,2-Dichloropropane	1.0	nd	00,0	nd	0170	0070	77
Dibromomethane	1.0	nd		nd			
Bromodichloromethane	1.0	nd		nd			
4-Methyl-2-pentanone	1.0	nd		nd			
cis-1,3-Dichloropropene	1.0	nd		nd			
Toluene	1.0	nd	93%	1.0	99%	102%	3%
trans-1,3-Dichloropropene	1.0	nd		nd			
1,1,2-Trichloroethane	1.0	nd		nd			
2-Hexanone	1.0	nd		nd			
1,3-Dichloropropane	1.0	nd		nd			
Dibromochloromethane	1.0	nd		nd			
Tetrachloroethene (PCE)	1.0	nd		nd			
1,2-Dibromoethane (EDB)(*)	0.10	nd		nd			
Chlorobenzene	1.0	nd	93%	nd	100%	104%	4%
1,1,1,2-Tetrachloroethane	1.0	nd		nd			
Ethylbenzene	1.0	nd		nd			
Xylenes	1.0	nd		nd			
Styrene	1.0	nd		nd			
Bromoform	1.0	nd		nd			
1,1,2,2-Tetrachloroethane Isopropylbenzene	1.0 1.0	nd 		nd			
1,2,3-Trichloropropane	1.0	nd		nd			
Bromobenzene	1.0	nd		nd			
n-Propylbenzene	1.0	nd nd		nd nd			
2-Chlorotoluene	1.0	nd		nd			
4-Chlorotoluene	1.0	nd		nd nd			
1,3,5-Trimethylbenzene	1.0	nd		nd			
tro,o-rrimetry,berizene tert-Butylbenzene	1.0	nd		nd	•		
1,2,4-Trimethylbenzene	1.0	nd		nd			
sec-Bulylbenzene	1.0	nd		nd			
1,3-Dichlorobenzene	1.0	nd		nd			
1,4-Dichlorobenzene	1.0	nd		nd			
sopropyltoluene	1.0	nd		nd			
1,2-Dichlorobenzene	1.0	nd		nd			
n-Butylbenzene	1.0	nd		nd			
1,2-Dibromo-3-Chloropropane	1.0	nd		nd			
1,2,4-Trichlorobenzene	1.0	nd		nd		•	
Vaphthalene	1.0	nd		nd			
-lexachloro-1,3-butadiene	1.0	nd		nd			
I,2,3-Trichlorobenzene	1.0	nd		nd			

^{*-}instrument detection limits

ESN Job Number:

S50513-1

Client:

Client Job Name:

WDFW RAT LAKE REHABILITATION

Analytical Results

8260, μg/L		MTH BLK	LCS S	SAMPLE 1	MS	MSD	RPD
Matrix	Water	Water	Water	Water	Water	Water	
	Reporting						
Date analyzed	Limits	05/13/05	05/13/05	05/13/05	05/13/05	05/13/05	
		•					
Surrogate recoveries:							
Dibromofluoromethane		99%	100%	99%	100%	.100%	
Toluene-d8		101%	100%	100%	101%	99%	
4-Bromofluorobenzene		98%	98%	100%	99%	101%	

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
J - estimated quantitation, below listed reporting limits
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

ESN Job Number:

S50513-1

Client:

WDFW

Client Job Name:

RAT LAKE REHABILITATION

8270, μg/L		MTH BLK	LCS	SAMPLE 3	MS	MSD	RPD
Matrix	Water	Water	Water	Water	Water	Water	
Date extracted	Reporting	05/17/05		05/17/05	05/17/05	05/17/05	
Date analyzed	Limits	05/17/05	05/17/05	05/17/05	05/17/05	05/17/05	
Duridina	2.0				Λ.		
Pyridine Aniline	2.0	nd nd		nd			
Phenol	2.0	nd 		nd ·			
2-Chlorophenol	2.0	nd nd		nd			
Bis (2-chloroethyl) ether	2.0	nd nd		nd 			
1,3-Dichlorobenzene	2.0			nd 			
1,4-Dichlorobenzene	2.0	nd nd	87%	nd	4050/	4050/	
1,2-Dichlorobenzene	2.0	nd nd	0776	nd nd	105%	105%	
Benzyl alcohol	2.0	nd nd		nd			
2-Methylphenol (o-cresol)	2.0	nd		nd			
Bis (2-chloroisopropyl) ether	10.0	nd		nd			
3,4-Methylphenol (m,p-cresol)	2.0	nd		nd			
Hexacholorethane	2.0	nd nd		nd			
N-Nitroso-di-n-propylamine	2.0	nd nd		nd nd			
Nitrobenzene	2.0	nd		nd			
Isophorone	2.0	nd		nd			
2-Nitrophenol	10.0	nd		nd			
4-Nitrophenol	10.0	nd		nd			
2,4-Dimethylphenol	2.0	nd		nd			
Bis (2-chloroethoxy) methane	2.0	nd		nd			
2,4-Dichlorophenol	10.0	nd		nd			
1,2,4-Trichlorobenzene	2.0	nd		nd			
Naphthalene	2.0	nd		nd			
4-Chloroaniline	10.0	nd		nd			
Hexachlorobutadiene	2.0	nd	106%	nd	110%	119%	
4-Chloro-3-methylphenol	10.0	nd	10070	nd	11070	11070	
2-Methylnapthalene	2.0	nd		nd			
1-Methylnapthalene	2.0	nd		nd			
Hexachlorocyclopentadiene	2.0	nd		nd			
2,4,6-Trichlorophenol	10.0	nd		nd			
2,4,5-Trichlorophenol	10.0	nd		nd			
2-Chloronaphthalene	2.0	nd		nd			
2-Nitroaniline	10.0	nd		nd			
1,4-Dinitrobenzene	10.0	nd		nd			
Dimethylphthalate	2.0	nd		nd			
Acenaphthylene	0.2	nd		nd			
1,3-Dinotrobenzene	10.0	nd		nd			
2,6-Dinitrotoluene	2.0	nd		nd		•	
1,2-Dinitrobenzene	2.0	nd		nd			
Acenaphthene	0.2	nd	98%	nd	103%	110%	
3-Nitroaniline	10.0	nd	0070	nd	.0070	. 1070	
Dibenzofuran	2.0	nd		nd			
2,4-Dinitrotoluene	2.0	nd		nd			
2,3,4,6-Tetrachlorophenol	2.0	nd		nd			
2,3,5,6-Tetrachlorophenol	2.0	nd		nd			
2,4-Dinitrophenol	10.0	nd		nd nd			
Fluorene	0.2	nd		nd	-		

ESN Job Number:

S50513-1

Client:

WDFW

Client Job Name:

RAT LAKE REHABILITATION

Analytical Results

8270, μg/L		MTH BLK	LCS	SAMPLE 3	MS	MSD	RPD
Matrix	Water	Water	Water	Water	Water	Water	
Date extracted	Reporting	05/17/05		05/17/05	05/17/05	05/17/05	
Date analyzed	Limits	05/17/05	05/17/05	05/17/05	05/17/05	05/17/05	
4-Chlorophenylphenylether	2.0	nd		nd			
Diethylphthalate	2.0	nd		nd			
4-Nitroaniline	10.0	nd		nd			
4,6-Dinitro-2-methylphenol	10.0	nd		nd			
N-nitrosodiphenylamine	2.0	√ nd	115%	nd	110%	117%	
Azobenzene	2.0	nd		nd			
4-Bromophenylphenylether	2.0	nd		nd			
Hexachlorobenzene	2.0	nd		nd			
Pentachlorophenol	10.0	nd	•	nd			
Phenanthrene	0.2	nd		· nd			
Anthracene	0.2	nd		nd			
Carbazole	2.0	nd		nd			
Di-n-butylphthalate	2.0	nd		nd			
Fluoranthene	0.2	nd	107%	nd	114%	120%	
Pyrene	0.2	nd		nd			
Butylbenzylphthalate	2.0	nd		nd			
Bis(2-ethylhexyl) adipate	2.0	nd		nd			
Benzo(a)anthracene	0.2	nd		nd			
Chrysene	0.2	nd	•	nd			
Bis (2-ethylhexyl) phthalate	2.0	2.4		nd			
Di-n-octyl phthalate	2.0	nd	100%	nd	111%	112%	
Benzo(b)fluoranthene	0.2	nd		nd			
Benzo(k)fluoranthene	. 0.2	nd		nd			
Benzo(a)pyrene	0.2	nd	99%	nd	105%	111%	
Dibenzo(a,h)anthracene	0.2	nd		nd			
Benzo(ghi)perylene	0.2	nd		nd			
Indeno(1,2,3-cd)pyrene	0.2	nd		nd			
Surrogate recoveries							
Nitrobenzene-d5		30%	107%	30%	31%	29%	
2-Fluorobiphenyl		127%	122%	112%	117%	120%	
4-Terphenyl-d14		128%	127%	115%	120%	124%	

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

Acceptable Recovery limits: 2-Flurophenol: 10-112 %

Phenol - d5: 10-85 %

2,4,6- tribromophenol: 29-159% Nitrobenzene - d5: 20-120 % 2-Flurobiphenyl: 50-150% p-Terphenyl-d14: 50-150% Acceptable RPD limit: 35%

ESN NORTHWEST

INVOICE

ESN Northwest

Tax ID #91-1510006

Phone: (360) 459-4670; Fax: (360) 459-3432

INVOICE#

S50624-4

INVOICE DATE

CLIENT JOB# June 29, 2005

BILL TO:

WA Dept. of Fish & Wildlife 600 Capitol Way North

Olympia, WA 98501

ATTN:

Jim Uehara

(Bob Jateff, Project Manager)

PROJECT:

Rat Lake Rehabilitation

Washington

DATE		·		
DATE	QUANTITY	DESCRIPTION	UNIT COST	TOTAL
6/27 6/29	1 1	8260 - water 8270 - water	\$110.00 \$270.00	\$110.00 \$270.00
	<u> </u>			
		Total Amou	ınt Due	\$380.00

TERMS: NET 30 DAYS

PLEASE SEND REMITTANCE TO THE ADDRESS BELOW

ESN Northwest 1210 Eastside Street SE, Suite 200 Olympia, WA 98501

ESN Job Number: Client: Client Job Name;

S50624-4 WASHINGTON DEPARTMENT OF FISH AND WILDLIFE RAT LAKE REHABILITATION

8260, µg/L		MTH BLK	LCS	WDFW	MS	MSD	RPD
Matrix	Water	Water	Water	Water	Water	Water	IVER
	Reporting	114(0)	774(0)	140101	1 40(0)	YYOUGI	
Date analyzed	Limits	06/27/05	06/27/05	06/27/05	06/27/05	06/27/05	

Dichlorodifluoromethane	1.0	nd		nd			
Chloromethane	1.0	nd		nd			
Vinyl chloride	0.2	nd		nd			
Bromomethane	1.0	nd		nd			
Chloroethane	1.0	nd		nd			
Trichlorofluoromethane	1.0	nd		nd			
Acetone	10.0	nd		nd			
1,1-Dichloroethene	1.0	nd	91%	nd	95%	84%	12%
Methylene chloride	10.0	nd		nd			
Methyl-t-butyl ether (MTBE)	1.0	nd		nd			
trans-1,2-Dichloroethene	1.0	nd		nd			
1,1-Dichloroethane	1.0	nd		nd			
2-Butanone (MEK)	10.0	nd		nd			
cis-1,2-Dichloroethene	1.0	nd		nd			
2,2-Dichloropropane	1.0	nd		nd			
Chloroform	1.0	nd		nd			
Bromochloromethane	1.0	nd		nd			
1,1,1-Trichloroethane	1.0	nd		nd			
1,2-Dichloroethane	1.0	nd		nd			
1,1-Dichloropropene	1.0	nd		nd			
Carbon tetrachloride	1.0	nd		nd			
Benzene	1.0	nd	104%	nd	108%	95%	13%
Trichloroethene (TCE)	1.0	nd	101%	nd	106%	92%	14%
1,2-Dichloropropane	1.0	nd		nd			
Dibromomethane	1.0	nd		nd			
Bromodichloromethane	1.0	nd		nd			
4-Methyl-2-pentanone	1.0	nd		nd			
cis-1,3-Dichloropropene	1.0	nd	40004	nd			
Toluene	1.0	nd	102%	nd	107%	93%	14%
trans-1,3-Dichloropropene	1.0	nd		nd			
1,1,2-Trichloroethane	1.0	nd		nd			
2-Hexanone	1.0	nd		nd			
1,3-Dichloropropane	1.0	nd		nd			
Dibromochloromethane	1.0	nd		nd			
Tetrachloroethene (PCE)	1.0	nd		nd			
1,2-Dibromoethane (EDB)(*) Chlorobenzene	0.10	nd	4000/	. nd	40004	0501	4004
	1.0	nd 	103%	nd	108%	95%	13%
1,1,1,2-Tetrachloroethane	1.0	nd		nd			
Ethylbenzene	1.0	nd		nd			
Xylenes	1.0	nd		nd			
Styrene	1.0	nd		nd 1			
Bromoform	1.0	nd		nd			
1,1,2,2-Tetrachloroethane	1.0	nd		nd			
Isopropylbenzene	1.0	nd		nd			
1,2,3-Trichloropropane Bromobenzene	1.0	nd		nd			
	1.0	nd		nd			
n-Propylbenzene	1.0	nd		nd			
2-Chlorotoluene	1.0	nd		nd			
4-Chlorotoluene	1.0	nd		nd			
1,3,5-Trimethylbenzene	1.0	nd		nd			
lert-Butylbenzene	1.0	nd		nd			
1,2,4-Trimethylbenzene	1.0	nd		nd			
sec-Butylbenzene	1.0	nd		nd			
1,3-Dichlorobenzene 1,4-Dichlorobenzene	1.0	nd		nd			
	1.0	nd		nd	•		
sopropyltoluene	1.0	nd		nd			
1,2-Dichlorobenzene	1.0	nd		nd			
1-Butylbenzene	1.0	nd		nd			
1,2-Dibromo-3-Chloropropane	1.0	nd		nd			
1,2,4-Trichlorobenzene	1.0	nd		nd			
Naphthalene	1.0	nd		nd			
-lexachloro-1,3-butadiene	1.0	nd		nd			
1,2,3-Trichlorobenzene	1.0	nd		nd			

^{*-}instrument detection limits

ESN Job Number:

Client: Client Job Name:

S50624-4 WASHINGTON DEPARTMENT OF FISH AND WILDLIFE RAT LAKE REHABILITATION

8260, μg/L		MTH BLK	LCS	WDFW	MS	MSD	RPD
Matrix	Water	Water	Water	Water	Water	Water	
	Reporting						
Date analyzed	Limits	06/27/05	06/27/05	06/27/05	06/27/05	06/27/05	
				•	,		
Surrogate recoveries:							
Dibromofluoromethane		96%	99%	99%	98%	96%	
Toluene-d8		97%	97%	98%	99%	98%	
4-Bromofluorobenzene		101%	99%	99%	98%	98%	

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
J - estimated quantitation, below listed reporting limits
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

ESN Job Number:

S50624-4

Client:

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

Client Job Name:

RAT LAKE REHABILITATION

8270, μg/L		MTH BLK	LCS	WDFW	MS	MSD	RPD
Matrix	Water	Water	Water	Water	Water	Water	
Date extracted	Reporting	06/29/05		06/29/05	06/29/05	06/29/05	
Date analyzed	Limits	06/29/05	06/29/05	06/29/05	06/29/05	06/29/05	
Pyridine	2.0						
Aniline	2.0	nd = d		nd !			
Phenol	2.0	nd 		nd			
2-Chlorophenol	2.0	nd		nd			
Bis (2-chloroethyl) ether	2.0	nd 		nd			
1,3-Dichlorobenzene	2.0	nd 		nd			
1,4-Dichlorobenzene	2.0	nd 	070/	nd	2001		
1,2-Dichlorobenzene	2.0 2.0	nd 	67%	nd	80%	81%	1%
Benzyl alcohol		nd 1		, nd			
2-Methylphenol (o-cresol)	2.0	nd		nd			
Bis (2-chloroisopropyl) ether	2.0	nd		nd			
3,4-Methylphenol (m,p-cresol)	10.0	nd		nd			
Hexacholorethane	2.0	nd '		nd			
	2.0	nd		nd			
N-Nitroso-di-n-propylamine Nitrobenzene	2.0	nd		nd			
	2.0	nd		nd			
Isophorone	2.0	nd !		nd			
2-Nitrophenol	10.0	nd		nd			
4-Nitrophenol	10.0	nd		nd			
2,4-Dimethylphenol Bis (2-chloroethoxy) methane	2.0	nd		nd			
2,4-Dichlorophenol	2.0	nd		nd			
•	10.0	nd		nd			
1,2,4-Trichlorobenzene	2.0	nd	•	nd			
Naphthalene 4-Chloroaniline	2.0	nd		nd			
	10.0	nd	40404	nd			
Hexachlorobutadiene	2.0	nd	101%	nd	120%	125%	4%
4-Chloro-3-methylphenol	10.0	nd		nd			
2-Methylnapthalene	2.0	nd		nd			
1-Methylnapthalene	2.0	nd		nd			
Hexachlorocyclopentadiene	2.0	nd		nd			
2,4,6-Trichlorophenol	10.0	nd		nd			
2,4,5-Trichlorophenol	10.0	nd		nd			
2-Chloronaphthalene	2.0	nd		nd			
2-Nitroaniline	10.0	nd		nd			
1,4-Dinitrobenzene	10.0	nd		nd			
Dimethylphthalate	2.0	nd		nd			
Acenaphthylene	0.2	nd		nd			
1,3-Dinotrobenzene	10.0	nd		nd			
2,6-Dinitrotoluene	2.0	nd		nd			
1,2-Dinitrobenzene	2.0	nd		nd			
Acenaphthene	0.2	nd	96%	nd	117%	122%	4%
3-Nitroaniline	10.0	nd		nd			
Dibenzofuran	2.0	nd		nd			
2,4-Dinitrotoluene	2.0	nd		nd			
2,3,4,6-Tetrachlorophenol	2.0	nd		nd			
2,3,5,6-Tetrachlorophenol	2.0	nd		nd			
2,4-Dinitrophenol	10.0	nd		nd			
Fluorene	0.2	nd		nd			

ESN Job Number:

S50624-4

Client:

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

Client Job Name:

RAT LAKE REHABILITATION

Analytical Results

8270, μg/L		MTH BLK	LCS	WDFW	MS	MSD	RPD
Matrix	Water	Water	Water	Water	Water	Water	
Date extracted	Reporting	06/29/05		06/29/05	06/29/05	06/29/05	
Date analyzed	Limits	06/29/05	06/29/05	06/29/05	06/29/05	06/29/05	
4-Chlorophenylphenylether	2.0	nd		nd			
Diethylphthalate	2.0	nd		nd			
4-Nitroaniline	10.0	nd		nd			
4,6-Dinitro-2-methylphenol	10.0	nd		nd			
N-nitrosodiphenylamine	2.0	nd	107%	nd	120%	125%	4%
Azobenzene	2.0	nd		nd		.2070	170
4-Bromophenylphenylether	2.0	nd		nd			
Hexachlorobenzene	2.0	nd		nd			
Pentachlorophenol	10.0	nd		nd			
Phenanthrene	0.2	nd		nd			
Anthracene	0.2	nd		nd			
Carbazole	2.0	nd		nd			
Di-n-butylphthalate	2.0	nd		nd			
Fluoranthene	0.2	nd	106%	nd	127%	138%	8%
Pyrene	0.2	nd		nd		, , , , ,	
Butylbenzylphthalate	2.0	nd		nd			
Bis(2-ethylhexyl) adipate	2.0	nd		nd			
Benzo(a)anthracene	0.2	nd		nd			
Chrysene	0.2	nd		nd			
Bis (2-ethylhexyl) phthalate	2.0	nd		nd			
Di-n-octyl phthalate	2.0	nd	89%	nd	112%	116%	4%
Benzo(b)fluoranthene	0.2	nd		nd			
Benzo(k)fluoranthene	0.2	nd		nd			
Benzo(a)pyrene	0.2	nd	92%	nd	111%	118%	6%
Dibenzo(a,h)anthracene	0.2	nd		nd			
Benzo(ghi)perylene	0.2	nd		nd			
ndeno(1,2,3-cd)pyrene	0.2	nd	e.	nd			
Surrogate recoveries							
Nitrobenzene-d5		34%	70%	29%	25%	24%	
2-Fluorobiphenyl		122%	101%	125%	126%	130%	
2,4,6-Tribromophenol		85%	78%	73%	82%	84%	
1-Terphenyl-d14		128%	102%	128%	132%	141%	

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

Acceptable Recovery limits:

2,4,6- tribromophenol: 29-159% Nitrobenzene - d5: 20-120 %

2-Flurobiphenyl: 50-150%

p-Terphenyl-d14: 50-150%

Acceptable RPD limit: 35%

POST TREATMENT DISCHARGE MONITORING REPORT

1. Lake Name: Big Green

2. County: Okanogan

3. Section: 12-13 Township: 34N Range: 25E

4. Date(s) of Treatment: Oct 12, 2005

- 5. Purpose of Treatment: Big Green Lake is located west of the town of Omak, Washington and provides an opportunity for fishermen near the Omak/Okanogan area to have a quality trout lake in close proximity to town. Big Green Lake is managed as a winter bait fishery Dec-Mar and as a catch and release fishery from Apr-Nov. The presence of the largemouth bass had created a competitive environment, so that fingerling trout plants had little or no chance of survival to yearlings. The only remaining means to restore the lake to trout only production was to chemically remove the bass population and replant with rainbow trout juveniles.
- 6. Name of Licensed Applicator: Jeff Korth
- 7. Lake Description: Surface Acres: 49 Volume: 882 Acre Feet:

Maximum Depth: 40 Average Depth: 18

8. Stream Description: Width: N/A, Length: N/A

Flow Rate of Stream/Outlet (cu. ft. per sec.): N/A

Volume and Weight of Water Treated (gallons, pounds): 2,398,447,296 lbs.

- 9. Name of Fish Toxicant Product Used: Rotenone Fish Toxicant Powder, Prenfish Fish Toxicant Liquid
- 10. **Description of Treatment Method(s):** Powder and liquid both applied by pumper boats, which mixes chemical with water prior to broadcasting into lake
- 11. Quantity of Fish Toxicant used (pounds and/or gallons): 1,815 lbs of powder and 10 gals of liquid
- 12. Concentration of rotenone in formulated Rotenone product: 6.7% in powder and 5.0% in liquid
- 13. Concentration of active rotenone in water (ppm): 1.0 ppm

14. Water conditions/quality: Water sampling done within 24hrs pre-treatment:

Depth (m)	Temperature ©	р Н	DO
0.9	13.6	8.53	6.73
2.5	13.57	8.59	6.64
5.1	13.19	8.56	6.46
7.0	13.06	8.57	6.43
10.1	13.01	8.58	6.04

- 15. Detoxification of rotenone treated water (if required): Description of detoxification methods/equipment; potassium permanganate application rate (pounds per hour); flow rate of stream/outlet (cu. ft. per sec.); estimate of average concentration (ppm): N/A
- 16. Description of lake inlets(s)/outlet(s) and any temporary water control measures (if required): N/A
- 17. Period of Toxicity (duration of water quality reduction): 4-6weeks
- 18. Eradicated fish species: largemouth bass, rainbow trout
- 19. Results of pre and post treatment monitoring: Prior to the treatment, the lake was sampled for various parameters including temperature, pH, and zooplankton. Post sampling included VOC and Semi-VOC both within 24 hours of treatment and 4 weeks post-treatment.
- 20. Impact on non-target organisms: None observed
- 21. Brief description of treatment/detoxification and other comments: The treatment began at 0900 on Oct 12, 2005 and was completed the same day. There was some airboat time needed to cover the shallow water areas at both ends of the lake. The day was cool and overcast with the wind picking up in the afternoon to aid in mixing the chemical. Largemouth bass began surfacing almost immediately and by the next day were scattered all along the shoreline. There were very few yearling trout from the previous year's plant indicating the necessity of the chemical treatment to remove the bass and reduce competition with trout fingerlings. A bioassay with 5 rainbow trout was conducted at 6 weeks and all fish survived, indicating that the lake had detoxified. During Apr-May of 2006, there will be 1,000 catchable and 12,000 fingerling rainbow trout replanted in the lake.
- 22. Copy of the amended FSEIS for lakes/streams treated during the reporting period including all SEPA comments, results and decisions
- 23. List of lakes/streams proposed for treatment during the upcoming year.

ESN NORTHWEST

INVOICE

ESN Northwest

Tax ID #91-1510006

Phone: (360) 459-4670; Fax: (360) 459-3432

INVOICE # S51017-2 INVOICE DATE October 19, 2005 **CLIENT JOB#**

BILL TO:

WA Dept. of Fish & Wildlife

600 Capitol Way North Olympia, WA 98501

ATTN:

Jim Uehara

(Bob Jateff, Project Manager)

PROJECT:

Big Green Lake Rehabilitation

Washington

DATE	QUANTITY	DESCRIPTION	UNIT COST	TOTAL
10/19 10/17	1	8260 - water 8270 - water	\$110.00 \$270.00	\$110.00 \$270.00
		Total An	ount Due	\$380.00

TERMS: NET 30 DAYS

PLEASE SEND REMITTANCE TO THE ADDRESS BELOW

ESN Northwest 1210 Eastside Street SE, Suite 200 Olympia, WA 98501

ESN Job Number: Client; Client Job Name;

S51017-2 WA. DEPT. OF FISH AND WILDLIFE BIG GREEN LAKE REHABILITATION

Matrix	Water	MTH BLK Water	LCS Water	2	MS		RP
	Reporting	vvater	vvater	Water	Water	Water	
Date analyzed	Limits	10/19/05	10/19/05	10/19/05	10110105	101122	
			10/10/00	10/19/00	10/19/05	10/19/05	
Dichlorodifluoromethane	1.0	nd		nd			
Chloromethane	1.0	nd		nd			
Vinyl chloride	0.2	nd		nd			
Bromomethane	1.0	nd		nd			
Chloroethane	1.0	nd		nd			
Trichlorofluoromethane	1.0	nd		nd	•		
Acetone	10.0	nd		nd			
1,1-Dichloroethene	1.0	nd	93%	nd	95%	88%	8%
Methylene chloride	10.0	nd		nd			•
Methyl-t-butyl ether (MTBE)	1.0	nd		·nd			
trans-1,2-Dichloroethene	1.0	nd		nd			
1,1-Dichloroethane	1.0	nd	•	nd			
2-Butanone (MEK) cis-1,2-Dichloroethene	10.0	nd		nd			
	1.0	nd		nd			
2,2-Dichloropropane Chloroform	1.0	nd		nd			
Bromochioromethane	1.0	nd		nd			
1,1,1-Trichloroethane	1.0	nd		nd			
1,2-Dichloroethane	1.0	nd		nď			•
1,1-Dichloropropene	1.0	nd		nd			
Carbon tetrachloride	1.0 1.0	nd		nd			
Benzene	1.0	nd		nd			
Trichloroethene (TCE)	1.0	nd	116%	nđ	115%	109%	5%
1,2-Dichloropropane	1.0	nd	105%	nd	104%	99%	5%
Dibromomethane	1.0	nd nd		nd			
Bromodichloromethane	1.0	nd		nd t			
1-Methyl-2-pentanone	1.0	nd		nd			
cis-1,3-Dichloropropene	1.0	nd	•	nd			
Toluene	1.0	nd	118%	nd nd	4400		
rans-1,3-Dichloropropene	1.0	nd	11070	nd	116%	109%	6%
,1,2-Trichloroethane	1.0	nd		nd			
!-Hexanone	1.0	nd		nd			
,3-Dichloropropane	1.0	nd		nd			
Dibromochloromethane	1.0	nd		nd			
etrachloroethene (PCE)	1.0	nd		nd			
,2-Dibromoethane (EDB)(*)	0.10	. nd		nd			
hlorobenzene	1.0	nd	112%	nd	111%	105%	6%
1,1,2-Tetrachloroethane	1.0	nd		nd	******	10070	0.70
Ihylbenzene	1.0	nd		nd			
ylenes	1.0	nd		nd			
tyrene	1.0	nd		nd			
romoform	1.0	nd		nd			
1,2,2-Tetrachloroethane	1.0	nd		nd			
opropylbenzene	1.0	nd		nd			
2,3-Trichloropropane	. 1.0	nd		nd			
omobenzene	1.0	nd		nd			
Propylbenzene Chlorotolyana	1.0	nd		nd			
Chlorotoluene Chlorotoluene	1.0	nd		nd			
3,5-Trimethylbenzene	1.0	nd		nd			
t-Butylbenzene	1.0	nd		nd			
2,4-Trimethylbenzene	1.0	nd		nd			
c-Butylbenzene	1.0	nd		nd			
-Dichlorobenzene	1.0	nd		nd			
-Dichlorobenzene	1.0	nd		nd			
propyltoluene	1.0	nd		nd			
-Dichlorobenzene	1.0	nd		nd			
Putylbenzene Butylbenzene	1.0	nd		nd			
-Dibromo-3-Chloropropane	1.0	nd		nd			
-Dibioino-3-Chioropropane ,4-Trichlorobenzene	1.0	nd		nd			
phthalene	. 1.0	nd		nd			
kachloro-1,3-butadiene	1.0	nd		2.2			
,3-Trichlorobenzene	1.0	nd		nd			
strument detection limits	1.0	nd		nd			

ESN Job Number:

S51017-2

Client:

WA. DEPT. OF FISH AND WILDLIFE BIG GREEN LAKE REHABILITATION

Client Job Name:

8260, µg/L		MTH BLK	LCS	2	MS	MSD R	RPD
Matrix	Water	Water	Water	Water	Water	Water	
	Reporting						
Date analyzed	Limits	10/19/05	10/19/05	10/19/05	10/19/05	10/19/05	
Surrogate recoveries:							
Dibromofluoromethane		105%	104%	102%	104%	102%	
Toluene-d8		99%	100%	100%	100%	101%	
4-Bromofluorobenzene		113%	110%	108%	110%	110%	

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

J - estimated quantitation, below listed reporting limits

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

ESN Job Number:

S51017-2

Client: Client Job Name: WA. DEPT. OF FISH AND WILDLIFE BIG GREEN LAKE REHABILITATION

Date extracted Reporting 10/17/05 10/17/05 10/17/05 10/17/05	8270, μg/L		MTH BLK	LCS	. 1	MS	MSD	RPD
Limits 10/17/05	Matrix	Water	Water	Water	Water	Water	Water	
Pyridine							10/17/05	
Anilline 2.0 nd nd nd Phenol 2.0 nd nd nd Bis (2-chlorophenol 2.0 nd nd nd 1.3-Dichlorobenzene 2.0 nd nd nd 1.3-Dichlorobenzene 2.0 nd nd nd 2.1-Dichlorobenzene 2.0 nd nd nd 2.2-Dichlorobenzene 2.0 nd nd nd Phenol (0-cresol) 2.0 nd nd nd Nd Phenol 2.0 nd Nd Phenol	Date analyzed	Limits	10/17/05	10/17/05	10/17/05	10/17/05	10/17/05	
Anilline 2.0 nd nd nd Phenol 2.0 nd nd nd Bis (2-chlorophenol 2.0 nd nd nd 1.3-Dichlorobenzene 2.0 nd nd nd 1.3-Dichlorobenzene 2.0 nd nd nd 2.1-Dichlorobenzene 2.0 nd nd nd 2.2-Dichlorobenzene 2.0 nd nd nd Phenol (0-cresol) 2.0 nd nd nd Nd Phenol 2.0 nd Nd Phenol	Pyridina	2.0	,					
Phenol 2.0	- ·							
2-Chlorophenol 2.0 nd nd nd 1,3-Dichlorobenzene 2.0 nd nd nd 1,3-Dichlorobenzene 2.0 nd nd nd 1,4-Dichlorobenzene 2.0 nd nd nd 1,4-Dichlorobenzene 2.0 nd nd nd nd nd 1,4-Dichlorobenzene 2.0 nd								•
Bis (2-chloroethyl) ether 2.0 nd nd nd 1,4-Dichlorobenzene 2.0 nd 90% nd 97% 88% 1,2-Dichlorobenzene 2.0 nd nd nd 1,4-Dichlorobenzene 2.0 nd nd nd 2-Methylphenol (o-cresol) 2.0 nd nd nd 2-Methylphenol (o-cresol) 2.0 nd nd nd Bis (2-chloroisporopyl) ether 10.0 nd nd nd N-Mitroso-di-propyl ether 2.0 nd nd nd N-Mitroso-di-propylamine 2.0 nd N-Mit								
1,3-Dichlorobenzene 2.0 nd 90% nd 97% 88% 1,2-Dichlorobenzene 2.0 nd 90% nd 97% 88% 1,2-Dichlorobenzene 2.0 nd nd Benzyl alcohol 2.0 nd nd nd Benzyl alcohol 2.0 nd nd nd 3,4-Methylphenol (o-cresol) 2.0 nd								
1,4-Dichlorobenzene 2.0 nd 90% nd 97% 88% 1,2-Dichlorobenzene 2.0 nd nd nd Benzyl alcohol 2.0 nd nd 2-Methylphenol (o-cresol) 2.0 nd nd nd 2-Methylphenol (o-cresol) 2.0 nd nd nd Bis (2-chloroisopropyl) ether 10.0 nd nd nd Nethylphenol (m.p-cresol) 2.0 nd nd nd Nethylphenol 2.4-Dimethylphenol 2.0 nd nd nd Nethylphenol 2.4-Dimethylphenol 2.0 nd nd nd Nethylphenol 2.4-Dimethylphenol 3.0 nd nd nd Nethylphenol 3.2 nd Nethylphenol 3.2 nd nd nd Nethylphenol 3.3								
1,2-Dichlorobenzene 2.0 nd nd nd Benzyl alcohol (-cresol) 2.0 nd nd nd Nd Schlorobenzene 10.0 nd	•							
Benzyl alcohol 2.0 nd nd nd 2.4Methylphenol (o-cresol) 2.0 nd nd nd Bis (2-chloroisopropyl) ether 10.0 nd				90%		97%	88%	10%
2-Methylphenol (o-cresol) 2.0 nd								
Bis (2-chloroisopropyl) ether 10.0 nd nd 3,4-Methylphenol (m.p-cresal) 2.0 nd nd nd Hexacholorethane 2.0 nd nd nd N-Nitroso-di-n-propylamine 2.0 nd nd nd N-Nitroso-di-n-propylamine 2.0 nd nd Nitrobenzene 2.0 nd nd nd Sophorone 2.0 nd nd nd N-Nitrospenol 10.0 nd nd nd N-Nitrospenol 10.0 nd ND NITROSPENOL 10.0 ND NIT	•				nd			
3,4-Methylphenol (m.p-cresol) 4.0								
Hexacholorethane					nd			
N-Nitroso-di-n-propylamine 2.0 nd nd nd Nitrobenzene 2.0 nd nd nd Isophorone 2.0 nd nd nd Isophorone 2.0 nd nd nd 2-Nitrophenol 10.0 nd nd nd nd 1.2.4-Dinitrophenol 10.0 nd nd nd 1.2.4-Trichlorophenol 10.0 nd nd nd 1.2.4-Trichlorophenol 10.0 nd nd Naphthalene 2.0 nd nd nd 1.2.4-Trichlorobenzene 2.0 nd nd nd 1.2.4-Trichlorobenzene 2.0 nd nd 10.2 nd Naphthalene 2.0 nd nd 10.2 nd nd 10.2 Naphthalene 2.0 nd nd 10.2 Naphthalene 2.0 nd nd 10.2 Naphthalene 2.0 nd nd Naphthalene 2.0 nd Napht	- · · · · · · · · · · · · · · · · · · ·		nd		nd			
Nitrobenzene 2.0 nd nd sophorone 2.0 nd nd sophorone 2.0 nd nd 2-Nitrophenol 10.0 nd nd 2-Nitrophenol 10.0 nd nd nd 2-Nitrophenol 10.0 nd nd nd 2-4-Dinethylphenol 2.0 nd nd nd 2-4-Dinethylphenol 10.0 nd nd nd 2-4-Dinethylphenol 10.0 nd nd nd 1,2,4-Dinethylphenol 10.0 nd nd nd 1,2,4-Dinethylphenol 10.0 nd nd nd 1,2,4-Tirchlorophenol 10.0 nd nd nd 1,2,4-Tirchlorophenol 10.0 nd nd nd 1-2-Methylnapthalene 2.0 nd nd nd 102% 98% 1-4-Chloro-3-methylphenol 10.0 nd nd nd 10-2-Methylnapthalene 2.0 nd nd nd 10-2-Methylnapthalene 2.0 nd nd nd 1-2-Methylnapthalene 2.0 nd nd nd 2,4,5-Trichlorophenol 10.0 nd nd nd 2,4,5-Trichlorophenol 10.0 nd nd nd 2-4,5-Trichlorophenol 10.0 nd nd nd 2-4,5-Trichlorophenol 10.0 nd nd nd 2-4,5-Trichlorophenol 10.0 nd nd nd 3-1-Dinitrobenzene 10.0 nd nd nd nd 3-1-Dinitrobenzene 10.0 nd					nd .			
Sophorone 2.0	, , ,		nd		ńd			
2-Nitrophenol 10.0 nd nd			nd.		nd		•	
4-Nitrophenol 10.0 nd nd 2,4-Dimethylphenol 2.0 nd nd nd Bisis (2-chloroethoxy) methane 2.0 nd nd nd 2,4-Dichlorophenol 10.0 nd nd nd 1,2,4-Trichlorobenzene 2.0 nd nd 10.0 nd	·		nd		nd			
2,4-Dimethylphenol. Bis (2-chloroethoxy) methane 2,0	•	10.0	nd		nd			
Bis (2-chloroethoxy) methane 2.0 nd nd 2,4-Dichlorophenol 10.0 nd nd 1,2,4-Trichlorophenol 10.0 nd nd 1,2,4-Trichlorobenzene 2.0 nd nd Naphthalene 2.0 nd nd 4-Chloroaniline 10.0 nd nd 4-Chloro-3-methylphenol 10.0 nd nd 4-Chloro-3-methylphenol 10.0 nd nd 102% 98% 4-Chloro-3-methylphenol 10.0 nd nd 102% 98% 4-Chloro-3-methylphenol 10.0 nd nd 104 1-Methylnapthalene 1-Methyln	•	10.0	nd .		nd _			
2,4-Dichlorophenol 10.0 nd nd 1,2,4-Trichlorobenzene 2.0 nd nd Naphthalene 2.0 nd nd 4-Chloroaniline 10.0 nd nd 4-Chloro-3-methylphenol 10.0 nd nd 4-Chloro-3-methylphenol 10.0 nd nd 1-Methylnapthalene 2.0 nd nd 2-A,6-Trichlorophenol 10.0 nd nd 2-A,6-Trichlorophenol 10.0 nd nd 2-Nitroaniline 10.0 nd nd 2-Nitroaniline 10.0 nd nd 10-Nitroaniline 10.0 nd nd 10-Dinitrobenzene 10.0 nd nd 10-Dinitrobenzene 2.0 nd nd 10-Dinitrobenzene 2.0 nd		2.0	nd		nd			•
1,2,4-Trichlorobenzene 2.0 nd nd nd 4-Chloroaniline 10.0 nd nd nd 4-Chloroaniline 10.0 nd nd nd 4-Chloroaniline 10.0 nd nd nd 102% 98% 4-Chloro-3-methylphenol 10.0 nd nd nd 1-Methylnapthalene 2.0 nd nd nd 1-Methylnapthalene 2.0 nd nd nd 10-Chlorophenol 10.0 nd nd nd 10-Chlorophenol 10.0 nd nd nd 10-Chlorophenol 10.0 nd nd nd 10-Chloronaphthalene 2.0 nd nd nd 10-Chloronaphthalene 10.0 nd nd nd 10-Chloronaphthalene 10.0 nd nd nd 10-Chlorophenol 10.0 nd nd nd 10-Chlorophenol 10.0 nd 10-Chlo		2.0	nd		nd			
Naphthalene 2.0 nd nd nd 4-Chloroaniline 10.0 nd nd nd 4-Chloroaniline 10.0 nd nd nd 102% 98% 4-Chloro-3-methylphenol 10.0 nd nd nd 102% 98% 4-Chloro-3-methylphenol 10.0 nd nd nd 102% 98% 4-Chloro-3-methylphenol 10.0 nd nd nd 104 nd 104 nd 105 nd	•	10.0	nd		nd			
Naphthalene 2.0 nd nd 4-Chloroaniline 10.0 nd nd Hexachlorobutadiene 2.0 nd 96% nd 102% 98% 4-Chloro-3-methylphenol 10.0 nd nd nd 102% 98% 4-Chlory-Mapthalene 2.0 nd nd nd 102% 98% 1-Methylnapthalene 2.0 nd nd nd 104	1,2,4-Trichlorobenzene	2.0	nd		nd			
Hexachlorobutadiene 2.0 nd 96% nd 102% 98% 4-Chloro-3-methylphenol 10.0 nd nd nd 2-Methylnapthalene 2.0 nd nd nd 1-Methylnapthalene 2.0 nd nd nd 2-4,46-Trichlorophenol 10.0 nd nd 2-4,45-Trichlorophenol 10.0 nd nd 2-4,5-Trichlorophenol 10.0 nd nd 2-4,5-Trichlorophenol 10.0 nd nd 2-4,5-Trichlorophenol 10.0 nd nd 2-4,5-Trichlorophenol 10.0 nd nd 2-4-Dinitrobenzene 10.0 nd nd nd 2-5-Dinitrobenzene 10.0 nd nd nd nd 2-5-Dinitrobenzene 2.0 nd nd nd nd 2-5-Dinitrobenzene 2.0 nd		2.0	nd					
4-Chloro-3-methylphenol 10.0 nd nd nd nd 2-Methylnapthalene 2.0 nd nd nd nd 1-Methylnapthalene 2.0 nd nd nd nd 2-4,46-Trichlorophenol 10.0 nd nd nd 2,4,5-Trichlorophenol 10.0 nd nd nd 2-Chloronaphthalene 2.0 nd nd nd 2-Chloronaphthalene 10.0 nd nd nd 2-Chloronaphthalene 10.0 nd nd nd 2-Nitroaniline 10.0 nd	I-Chloroaniline	10.0	nd		nd			
4-Chloro-3-methylphenol 10.0 nd nd nd 2-Methylnapthalene 2.0 nd nd nd 1-Methylnapthalene 2.0 nd nd nd 1-Methylnapthalene 2.0 nd nd nd 2.4,6-Trichlorophenol 10.0 nd nd nd 2.4,5-Trichlorophenol 10.0 nd nd nd 2.4,5-Trichlorophenol 10.0 nd nd nd 2.4,5-Trichlorophenol 10.0 nd nd nd 2.4-Dinitrobenzene 10.0 nd nd nd 2.5-Dinitrobenzene 10.0 nd nd nd 2.5-Dinitrobenzene 2.0 nd nd nd 2.5-Dinitrobenzene 2.0 nd nd nd 100% 96% 1-Nitroaniline 10.0 nd nd nd 100% 96% 1-Nitroaniline 10.0 nd nd nd 3.5,6-Tetrachlorophenol 2.0 nd nd nd 3.5,6-Tetrachlorophenol 2.0 nd nd nd nd 3.5,5-Tetrachlorophenol 2.0 nd nd nd Nd Northead 10.0 nd nd Nd Northead 10.0 nd	dexachlorobutadiene	2.0	nd`	96%	nd	102%	98%	4%
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2-Nitroaniline 10.0 nd nd nd nd nd nd nd n	-Chloronaphthalene	2.0	nd					
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Dimethylphthalate 2.0 nd nd Acenaphthylene 0.2 nd nd ,3-Dinotrobenzene 10.0 nd nd ,6-Dinitrotoluene 2.0 nd nd ,2-Dinitrobenzene 2.0 nd nd cenaphthene 0.2 nd 95% nd 100% 96% -Nitroaniline 10.0 nd nd </td <td>,4-Dinitrobenzene</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	,4-Dinitrobenzene							
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Accenaphthene 0.2 nd 95% nd 100% 96% -Nitroaniline 10.0 nd nd -Dibenzofuran 2.0 nd nd -A-Dinitrotoluene 2.0 nd nd -A-Dinitrophenol 2.0 nd nd -A-DINITROP								
-Nitroaniline 10.0 nd nd Dibenzofuran 2.0 nd nd ,4-Dinitrotoluene 2.0 nd nd ,3,4,6-Tetrachlorophenol 2.0 nd nd ,3,5,6-Tetrachlorophenol 2.0 nd nd				05%		1000/	069/	40/
Dibenzofuran 2.0 nd nd nd nd nd nd nd n				3378		10076	3070	4%
,4-Dinitrotoluene 2.0 nd nd ,3,4,6-Tetrachlorophenol 2.0 nd nd ,3,5,6-Tetrachlorophenol 2.0 nd nd								
,3,4,6-Tetrachlorophenol 2.0 nd nd nd ,3,5,6-Tetrachlorophenol 2.0 nd nd			•					
,3,5,6-Tetrachlorophenol 2.0 nd nd								
4 Dinibrank and	•							
10.0 NO NO								
luorene 0.2 nd nd	•						•	

ESN Job Number:

S51017-2

Client:

WA. DEPT. OF FISH AND WILDLIFE

Client Job Name:

BIG GREEN LAKE REHABILITATION

Analytical Results

8270, μg/L		MTH BLK	LCS	1	MS	MSD	RPD
Matrix	Water	Water	Water	Water	Water	Water	
Date extracted	Reporting	10/17/05		10/17/05	10/17/05	10/17/05	
Date analyzed	Limits	10/17/05	10/17/05	10/17/05	10/17/05	10/17/05	
4-Chlorophenylphenylether	2.0	nd		nd			
Diethylphthalate	2.0	nd		nd			
4-Nitroaniline	10.0	nd		nd			
4,6-Dinitro-2-methylphenol	10.0	nd		nd			
N-nitrosodiphenylamine	2.0	nd	92%	· nd	97%	90%	7%
Azobenzene	2.0	nd		nd			
4-Bromophenylphenylether	2.0	nd		nd			
Hexachlorobenzene	2.0	nd		nd			
Pentachlorophenol	10.0	nd		nd			
Phenanthrene	0.2	nd		nd			
Anthracene	0.2	nd		nd			
Carbazole	2.0	nd		nd		-	
Di-n-butylphthalate	2.0	nd		nd			
Fluoranthene	0.2	nd	94%	nd	107%	101%	6%
Pyrene	0.2	nd		nd		•	
Butylbenzylphthalate	2.0	nd		nd	•		,
Bis(2-ethylhexyl) adipate	2.0	nd		nd			
Benzo(a)anthracene	0.2	nd		nd			
Chrysene	0.2	nd		nd			
Bis (2-ethylhexyl) phthalate	2.0	nd		nd			
Di-n-octyl phthalate	2.0	nd	104%	nd	107%	101%	6%
Benzo(b)fluoranthene	0.2	nd		nd			
Benzo(k)fluoranthene	0.2	nd		nd			
Benzo(a)pyrene	0.2	nd	83%	· nd	97%	92%	5%
Dibenzo(a,h)anthracene	0.2	nd		nd			
Benzo(ghi)perylene	0.2	nd		nd			
Indeno(1,2,3-cd)pyrene	0.2	nd		nd			
Surrogate recoveries							
Nitrobenzene-d5		46%	97%	36%	51%	59%	
2-Fluorobiphenyl		103%	99%	103%	99%	101%	
4-Terphenyl-d14		109%	100%	107%	106%	110%	

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

Acceptable Recovery limits: Nitrobenzene - d5: 20-120 % 2-Flurobiphenyl: 50-150% p-Terphenyl-d14: 50-150% Acceptable RPD limit: 35% 55011 D

CHAIN-OF-CUSTODY RECORD

CLIENT: 12 1/5/11/11	to 1/427 ct	1111	M. / Wildh	Lc.	<u>ب</u> ا	ATE:	DATE: 10-13	- 0)	PAGE	7	OF		-
ADDRESS: \sqrt{c}	753	Omnik Len.	1011. 1354	,	<u></u>	ROJE	CT NA	ΛΕ: - //	Green	PROJECT NAME: By Green Later Holads 14 h.	dude 1	4.4	
PHONE: 504- 576-	526-7341	\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	FAX: 52 17- 516	- 73 40		LOCATION:) NO NO	By Green	ren Luke	OHIL	Omste Hera-	÷	
CLIENT PROJECT #:	- The second sec	PROJEC	PROJECT MANAGER: $\sqrt{\lambda} \frac{1}{k} \int_{\mathbb{R}} \frac{1}{k} \int_{\mathbb{R}}$	13.4 July 1	11	SOLLE	COLLECTOR	12.4	By by July ble		DATE 0	DATE OF 18-65 COLLECTION 18-65	3-01
Sample Number Depth	Sample Пте Туре	Container Type	Q 14 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15	\$ 2/5/100 100 100 100 100 100 100 100 100 100	6,000	1 2 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	188 18.	Principal sales	Rugi	NOTES		1edmuh latoT	of Containers Laboratory Hote Mumber
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RELINQUISHED BY (Signature)	DATE/TIME		RECEIVED BY (Signature)	DAIE/TIME		SAMP	SAMPLE RECEIPT	PT	AR A	LABORATORY NOTES:	TES:		
110.11.	027. 01. 11 01	`.	(元)		TOTAL NUMBER OF CONTAINERS	MBER	F CONTA	INERS					
RELINQUISHED BY (Signature)	DATE/TIME	RECEIM	RECEIVED BY (Signature)	DATE/TIME	CHAIN OF CUSTODY SEALS YAWNA	custo	DY SEAL	YMMA					
		•			SEALS INTACT? YANNA	TACT? Y	INNA						
AS.	SAMPLE DISPOSAL INSTRUCTIONS	AL INSTRUCT	NOT		RECEIVED GOOD COND,/COLD	00000	COND./C	OLD					
D ESN DISPOSAL	SPOSAL @ \$2.0	\$2.00 each Rel	Return Pickup		NOTES:				<u></u>	Turn Around Time:	: 24 HR	48 HR	5 DAY

INVOICE TERMS: NET 30 DAYS



CCI ANALYTICAL LABORATORIES, INC.

8620 HOLLY DRIVE, SUITE 100 EVERETT, WASHINGTON 98208 425-356-2600 FAX 425-356-2626 Invoice Number:

25852

Invoice Date:

Dec 2, 2005

CCI Job Number:

511083&084

Customer PO:

Sold To:

JIM UEHARA WA DEPT. OF FISH & WILDLIFE

MS: 43200 NRB

600 CAPITOL WAY NORTH OLYMPIA, WA 98501

Client Project ID:

BIG GREEN LAKE & SPECTACLE LAKE

uantity	Test Code		Unit Price	Amount
2	8021	BTEXM BY EPA-8021	70.00	140.00
2	PAH	PAH'S BY EPA-8270SIM	170.00	340.00
٠				
				•

Total Invoice Amount

480.00



CERTIFICATE OF ANALYSIS

CLIENT: WA DEPT. OF FISH & WILDLIFE

PO BOX 753 OMAK, WA 98841 DATE: CCIL JOB #: 12/2/2005

CCIL SAMPLE #:

0511084

DATE RECEIVED:

-01 11/21/2005

WDOE ACCREDITATION #:

C142

CLIENT CONTACT: BOB JATEFF

CLIENT PROJECT ID: CLIENT SAMPLE ID:

BIG GREEN LAKE REHAB 1 - 3 GREEN 11/18/2005 12:00

DATA RESULTS

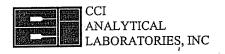
ANALYTE	METHOD	RESULTS*	UNITS**	ANALYSIS DATE	ANALYSIS BY
Benzene	EPA-8021	ND(<1)	UG/L	11/21/2005	LAP
Toluene	EPA-8021	ND(<1)	UG/L	11/21/2005	LAP
Ethylbenzene	EPA-8021	ND(<1)	UG/L	11/21/2005	LAP
Xylenes	EPA-8021	ND(<3)	UG/L	11/21/2005	LAP
Naphthalene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
1-Methylnaphthalene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
2-Methylnaphthalene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Acenaphthylene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Acenaphthene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Fluorene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Phenanthrene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Anthracene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Fluoranthene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Pyrene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Benzo[A]Anthracene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Chrysene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Benzo[B]Fluoranthene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Benzo[K]Fluoranthene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Benzo(A)Pyrene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Indeno[1,2,3-Cd]Pyrene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Dibenz[A,H]Anthracene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Benzo[G,H,I]Perylene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN

^{**}ND* INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.

APPROVED BY:

Page 1

[&]quot; UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS



CERTIFICATE OF ANALYSIS

CLIENT: WA DEPT. OF FISH & WILDLIFE

PO BOX 753

OMAK, WA 98841

DATE: 12/2/2005

CCIL JOB #: 0511084

DATE RECEIVED: 11/21/2005

WDOE ACCREDITATION #:

C142

CLIENT CONTACT: BOB JATEFF

CLIENT PROJECT ID:

BIG GREEN LAKE REHAB

SURROGATE RECOVERY

CCIL SAMPLE ID

METHOD

SUR ID

% RECV

0511084-01 0511084-01

EPA-8021 EPA-8270 SIM

TFT Terphenyl-d14 105 107.

APPROVED BY:

FAX 425 356-2626

POST TREATMENT DISCHARGE MONITORING REPORT

1. Lake Name: Spectacle

2. County: Okanogan

3. Section: 2-4-9-10-11 Township: 38N Range: 26E

4. **Date(s) of Treatment:** Oct 17-20, 2005

- 5. Purpose of Treatment: Spectacle Lake is located near the town of Loomis, Washington and is one of the most important production trout lakes in Okanogan County. Spectacle Lake is managed as a standard gear fishery with an Apr 1 Sept 30 open season. The recent illegal introduction of brown bullhead and other spiny ray fishes to the lake had severely compromised the trout fishery. The presence of the bullheads, bluegills, and bass created a competitive environment, so that fingerling trout plants had little or no chance of survival to yearlings. The only remaining means to restore the lake to trout only production was to chemically remove the invasive species populations and replant with rainbow and brown trout juveniles.
- 6. Name of Licensed Applicator: Jeff Korth
- 7. Lake Description: Surface Acres: 307 Volume: 8,505 Acre Feet:

Maximum Depth: 61 Average Depth: 28

8. Stream Description: Width: N/A, Length: N/A

Flow Rate of Stream/Outlet (cu. ft. per sec.): N/A

Volume and Weight of Water Treated (gallons, pounds): 23,127,884,000 lbs.

- 9. Name of Fish Toxicant Product Used: Rotenone Fish Toxicant Powder, Prenfish Fish Toxicant Liquid
- **10. Description of Treatment Method(s):** Powder and liquid both applied by pumper boats, which mixes chemical with water prior to broadcasting into lake
- 11. Quantity of Fish Toxicant used (pounds and/or gallons): 46,255 lbs of powder and 38 gals of liquid
- **12.** Concentration of rotenone in formulated Rotenone product: 7.5% in powder and 5.0% in liquid
- 13. Concentration of active rotenone in water (ppm): 3.0 ppm

14. Water conditions/quality: Water sampling done within 24hrs pre-treatment:

Depth (m)	Temperature ©	pН	DO
0.3	12.66	8.12	9.12
2.8	12.39	8.15	9.09
4.5	12.32	8.13	8.83
6.8	12.26	8.11	8.64
7.0	12.11	7.78	6.86
8.0	11.78	7.52	4.64
9.0	10.21	7.40	1.55
10.1	7.93	7.28	1.38
12.2	6.42	7.20	1.37

- 15. Detoxification of rotenone treated water (if required): Description of detoxification methods/equipment; potassium permanganate application rate (pounds per hour); flow rate of stream/outlet (cu. ft. per sec.); estimate of average concentration (ppm): N/A
- 16. Description of lake inlets(s)/outlet(s) and any temporary water control measures (if required): A portion of the inlet (Toats Coulee irrigation pipeline) was treated with liquid rotenone, which then flowed into Spectacle Lake. Outlet water was turned off prior to treatment by Whitestone Irrigation District.
- 17. Period of Toxicity (duration of water quality reduction): 4-6weeks
- 18. Eradicated fish species: brown bullheads, bluegills, pumpkinseed sunfish, largemouth and smallmouth bass, and rainbow trout
- 19. Results of pre and post treatment monitoring: Prior to the treatment, the lake was sampled for various parameters including temperature, pH, and zooplankton. Post sampling included VOC and Semi-VOC both within 24 hours of treatment and 4 weeks post-treatment.
- 20. Impact on non-target organisms: None observed
- 21. Brief description of treatment/detoxification and other comments: The treatment began at 0900 on May 17, 2005 and was completed by the afternoon on May 20. Treatment consisted of 1.0 ppm each day until 3 ppm was achieved in the lake. Liquid rotenone was used in all shallow water areas and in the inlet stream. The weather was mild with some rain and wind, which aided in mixing. Even though the lake had not turned over yet, the higher dosage produced good results. Brown bullheads began surfacing the first day, but were still breathing due to the lower treatment dosage. By the end of the second and third days, thousands of brown bullheads, sunfish, and bluegill, along with hundreds of bass were lining the shoreline indicating a good kill rate. There were very few carryover trout from the

previous year's plant indicating the necessity of the chemical treatment to remove the invasive species and allow a fingerling trout plant to survive to catchable size. A bioassay with 5 rainbow trout was conducted at 6 weeks and all fish survived, indicating that the lake had detoxified. During Apr-May of 2006, 32,000 catchable and 150,000 fingerling rainbow will be planted as well as 3,000 brown trout.

- 22. Copy of the amended FSEIS for lakes/streams treated during the reporting period including all SEPA comments, results and decisions
- 23. List of lakes/streams proposed for treatment during the upcoming year.

ESN NORTHWEST

INVOICE

ESN Northwest

Tax ID #91-1510006

Phone: (360) 459-4670; Fax: (360) 459-3432

INVOICE # S51026-2 INVOICE DATE October 31, 2005

CLIENT JOB#

BILL TO:

WA Dept. of Fish & Wildlife

600 Capitol Way North Olympia, WA 98501

ATTN:

Jim Uehara

(Bob Jateff, Project Manager)

PROJECT:

Spectacle Lake Rehabilitation

Washington

DATE	QUANTITY	DESCRIPTION		UNIT COST	TOTAL
10/31 10/26	1.	8260 - water 8270 - water		\$110.00 \$270.00	\$110.0 \$270.0
and the second s			•		

TERMS: NET 30 DAYS

PLEASE SEND REMITTANCE TO THE ADDRESS BELOW

ESN Northwest 1210 Eastside Street SE, Suite 200 Olympia, WA 98501

ESN Job Number: Client; Client Job Name:

S51026-2 WDFW SPECTACLE LAKE REHABILITATION

Analytical Results							
8260, µg/L		MTH BLK	LCS	WDWF 6"	MS	MSD	RPD
Matrix	Water	Water	Water	Water	Water	Water	
Data analysis	Reporting	15/01/05	40/01/05				
Date analyzed	Limits	10/31/05	10/31/05	10/31/05	10/31/05	10/31/05	
Dichlorodifluoromethane	1.0	nd		nd			•
Chloromethane	1.0	nd		nd			
Vinyl chloride	0,2	nd		nd			
Bromomethane	1.0	nd		nd			
Chloroethane	1.0	nd		nd			
Trichlorofluoromethane	1.0	nd		nd			
Acetone	10.0	nd		nd			
1,1-Dichloroethene	1.0	nd	83%	nd	102%	97%	5%
Methylene chloride	10.0	nd		nd			
Methyl-t-butyl ether (MTBE)	1.0	nd		nd			
trans-1,2-Dichloroethene	1.0	nđ		nd			
1,1-Dichloroethane	1.0	nd		nd			
2-Butanone (MEK)	10.0	nd		nd			
cis-1,2-Dichloroethene	1.0	nd		nd			
2,2-Dichloropropane	1.0	nd		nd			
Chloroform	1.0	nd		nd			
Bromochloromethane	1.0	nd		nd			
1,1,1-Trichloroethane	1.0	nd		nd			
1,2-Dichloroethane	1.0	nd		nd			•
1,1-Dichloropropene	1.0	nd		nd			
Carbon tetrachloride	1.0.	nd		nd			
Benzene	1.0	nd	98%	nd	121%	115%	5%
Trichloroethene (TCE)	1.0	nd	91%	nd	109%	104%	5%
1,2-Dichloropropane	1.0	nd		nd			
Dibromomethane	1.0	nd		nd			
Bromodichloromethane 4-Methyl-2-pentanone	1.0	nd		nd			
cis-1,3-Dichloropropene	1.0 1.0	nd		nd 			
Toluene	1.0	nd nd	100%	nd	40007	4400/	004
trans-1,3-Dichloropropene	1,0	nd	10076	nd nd	123%	116%	6%
1,1,2-Trichloroethane	1.0	nd		nd			
2-Hexanone	1.0	nd		nd			
1,3-Dichloropropane	1.0	nd		nd			
Dibromochloromethane	1.0	nd		nd			
Tetrachloroethene (PCE)	1.0	nd		nd			
1,2-Dibromoethane (EDB)(*)	0.10	nd		nd			
Chlorobenzene	1.0	nd	96%	nd	119%	113%	5%
1,1,1,2-Tetrachloroethane	1.0	nd	00,0	nd	11070	11070	370
Ethylbenzene	1.0	nd		nd			
Xylenes	1.0	nd		nd			
Styrene	1.0	nd		nd			
Bromoform	1.0	nd		nd			
1,1,2,2-Tetrachloroethane	1.0	nd		nd			
Isopropylbenzene	1.0	nd		nd	•		
1,2,3-Trichloropropane	1.0	nd		nd			
Bromobenzene	1.0	nd		nd			
n-Propylbenzene	1.0	nd		nd			
2-Chlorotoluene	1.0	nd		nd			
4-Chlorotoluene	1.0	nd		nd			
1,3,5-Trimethylbenzene	1.0	nd		nd			
ert-Butylbenzene	1.0	nd		nd			
1,2,4-Trimethylbenzene	1.0	ŋd		nd			
sec-Butylbenzene	1.0	nd		nd			
1,3-Dichlorobenzene	1.0	nd		nd			
1,4-Dichlorobenzene	1.0	nd		nd			
sopropyltoluene	1.0	nd		nd			
1,2-Dichlorobenzene	1.0	nd		nd			
n-Butylbenzene	1.0	nd		nd			
1,2-Dibromo-3-Chloropropane	1.0	nd		nd			
1,2,4-Trichlorobenzene	1.0	nd		nd			
Naphthalene	1.0	nd		nd			
lexachloro-1,3-butadiene	1.0	nđ		nd			
1,2,3-Trichlorobenzene	1.0	nd		nd			

^{*-}instrument detection limits

ESN Job Number:

S51026-2 WDFW

Client Job Name:

Client:

SPECTACLE LAKE REHABILITATION

Analytical Results

8260, μg/L		MTH BLK	LCS	WDWF 6"	MS	MSD	RPD
Matrix	Water	Water	Water	Water	Water	Water	
	Reporting						
Date analyzed	Limits	10/31/05	10/31/05	10/31/05	10/31/05	10/31/05	
Surrogate recoveries:							
Dibromofluoromethane		101%	105%	101%	105%	104%	
Toluene-d8		100%	102%	99%	101%	100%	
4-Bromofluorobenzene		106%	106%	108%	107%	110%	

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

J - estimated quantitation, below listed reporting limits

Acceptable Recovery limits: 65% TO 135%

Acceptable RPD limit: 35%

ESN Job Number:

S51026-2

Client:

WDFW

Client Job Name:

SPECTACLE LAKE REHABILITATION

8270, µg/L		MTH BLK	LCS	WDWF 6"	MS	MSD	RPD
Matrix	Water	Water	Water	Water	Water	Water	
Date extracted	Reporting						
Date analyzed	Limits	10/26/05	10/26/05	10/26/05	10/26/05	10/26/05	
Pyridine	2.0	nd		nd			
Aniline	2.0	nd		nd			
Phenol	2.0	nd		nd			
2-Chlorophenol	2.0	nd		nd			
Bis (2-chloroethyl) ether	2.0	nd		nd	,		
1,3-Dichlorobenzene	2.0	nd		nd			
1,4-Dichlorobenzene	2.0	nd	88%	nd	113%	111%	2%
1,2-Dichlorobenzene	2.0	nd		nd			
Benzyl alcohol	2.0	nd		nd			
2-Methylphenol (o-cresol)	2.0	nd		nd			-
Bis (2-chloroisopropyl) ether	10.0	nd		nd			
3,4-Methylphenol (m,p-cresol)	2.0	nd		nd			
Hexacholorethane	2.0	nd		nd			
N-Nitroso-di-n-propylamine	2.0	nd		nd			
Nitrobenzene	2.0	nd		nd	•		
Isophorone	2.0	nd		nd			
2-Nitrophenol	10.0	nd		nd	*		
4-Nitrophenol	10.0	nd		nd			
2,4-Dimethylphenol	2.0	nd		nd			
Bis (2-chloroethoxy) methane	2.0	nd		nd			
2,4-Dichlorophenol	10.0	nd		nd			
1,2,4-Trichlorobenzene	2.0	nd		nd			
Naphthalene	2.0	nd		nd			
4-Chloroaniline	10.0	nd		nd			
Hexachlorobutadiene	2.0	nd	98%	nd	126%	122%	3%
4-Chloro-3-methylphenol	10.0	nd		nd			
2-Methylnapthalene	2.0	nd		nd			
1-Methylnapthalene	2.0	nd		nd			
Hexachlorocyclopentadiene	2.0	nd		nd			
2,4,6-Trichlorophenol	10.0	nd		nd			
2,4,5-Trichlorophenol	10.0	nd		nd			
2-Chloronaphthalene	2.0	nd		nd			
2-Nitroaniline	10.0	nd		nd			
1,4-Dinitrobenzene	10.0	nd		nd			
Dimethylphthalate	2.0	nd		nd			
Acenaphthylene	0.2	nd		nd			
1,3-Dinotrobenzene	10.0	nd		nd			
2,6-Dinitrotoluene	2.0	nd		· nd			
1,2-Dinitrobenzene	2.0	nd		nd			
Acenaphthene	0.2	nd	94%	nd	120%	116%	3%
3-Nitroaniline	10.0	nd		nd			
Dibenzofuran	2.0	nd	,	nd			
2,4-Dinitrotoluene	2.0	nd		nd			
2,3,4,6-Tetrachlorophenol	2.0	nd		nd			
2,3,5,6-Tetrachlorophenol	2.0	nd		· nd			
2,4-Dinitrophenol	10.0	nd		nd			
Fluorene	0.2	nd		nd			

ESN Job Number:

S51026-2

Client:

WDFW

Client Job Name:

SPECTACLE LAKE REHABILITATION

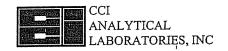
Analytical Results

8270, μg/L		MTH BLK	LCS	WDWF 6"	MS	MSD	RPD
Matrix	Water	Water	Water	Water	Water	Water	
Date extracted	Reporting						
Date analyzed	Limits	10/26/05	10/26/05	10/26/05	10/26/05	10/26/05	***************************************
4-Chlorophenylphenylether	2.0	nd		nd			
Diethylphthalate	2.0	nd		nd			
4-Nitroaniline	10.0	nd		nd			
4,6-Dinitro-2-methylphenol	10.0	nd		nd			
N-nitrosodiphenylamine	2.0	nd	87%	nd	108%	103%	5%
Azobenzene	2.0	nd		nd			
4-Bromophenylphenylether	2.0	nd		nd			
Hexachlorobenzene	2.0	nd		nd			
Pentachlorophenol	10.0	nd		nd			
Phenanthrene	0.2	nd		nd			
Anthracene	0.2	nd		nd			
Carbazole	2.0	nd		nd			
Di-n-butylphthalate	2.0	nd		nd			
Fluoranthene	0.2	nd	95%	nd	121%	122%	1%
Pyrene	0.2	nd		nd			
Butylbenzylphthalate	2.0	nd		nd			
Bis(2-ethylhexyl) adipate	2.0	nd		nd	•		
Benzo(a)anthracene	0.2	nd		nd			
Chrysene	0.2	nd		. nd			
Bis (2-ethylhexyl) phthalate	2.0	nd		nd			
Di-n-octyl phthalate	2.0	nd	74%.	nd	104%	99%	5%
Benzo(b)fluoranthene	0.2	nd		nd			
Benzo(k)fluoranthene	0.2	nd		nd			
Benzo(a)pyrene	0.2	nd	79%	nd	116%	112%	4%
Dibenzo(a,h)anthracene	0.2	nd		nd			
Benzo(ghi)perylene	0.2	nd		nd			
Indeno(1,2,3-cd)pyrene	0.2	nd		nd			
Surrogate recoveries							
Nitrobenzene-d5		47%	94%	56%	62%	63%	
2-Fluorobiphenyl		128%	101%	119%	135%	129%	
4-Terphenyl-d14		125%	95%	119%	133%	133%	

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

Acceptable Recovery limits:
Nitrobenzene - d5: 20-120 %
2-Flurobiphenyl: 50-150%
p-Terphenyl-d14: 50-150%
Acceptable RPD limit: 35%



CLIENT: WA DEPT. OF FISH & WILDLIFE

PO BOX 753

OMAK, WA 98841

DATE:

12/2/2005

CCIL JOB #:

0511083

CCIL SAMPLE #:

-01

DATE RECEIVED: WDOE ACCREDITATION #: 11/21/2005 C142

CLIENT CONTACT: BOB JATEFF

CLIENT PROJECT ID: CLIENT SAMPLE ID:

SPECTACLE LAKE REHAB 1 - 3 SPEC 11/18/2005 12:00

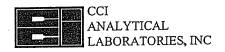
ANALYTE	METHOD	RESULTS*	UNITS**	ANALYSIS . DATE	ANALYSIS BY
Benzene	EPA-8021	ND(<1)	UG/L	11/21/2005	LAP
Toluene	EPA-8021	ND(<1)	UG/L	11/21/2005	LAP
Ethylbenzene	EPA-8021	ND(<1)	UG/L	11/21/2005	LAP

Benzene Toluene Ethylbenzene Xylenes	EPA-8021 EPA-8021 EPA-8021 EPA-8021	ND(<1) ND(<1) ND(<1) ND(<3)	UG/L UG/L UG/L UG/L	11/21/2005 11/21/2005 11/21/2005 11/21/2005	LAP LAP LAP LAP
Naphthalene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
1-Methylnaphthalene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
2-Methylnaphthalene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Acenaphthylene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Acenaphthene	EPA-8270 SIM	ND(<0.02)	UĠ/L	11/29/2005	CCN
Fluorene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Phenanthrene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Anthracene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Fluoranthene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Pyrene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Benzo[A]Anthracene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Chrysene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Benzo[B]Fluoranthene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Benzo[K]Fluoranthene	EPA-8270 SIM	ND(<0.02)	UG/L ~	11/29/2005	CCN
Benzo(A)Pyrene	EPA-8270 SIM	ND(<0.02)	U.G/L	11/29/2005	CCN
Indeno[1,2,3-Cd]Pyrene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Dibenz[A,H]Anthracene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN
Benzo[G,H,I]Perylene	EPA-8270 SIM	ND(<0.02)	UG/L	11/29/2005	CCN

APPROVED BY:

Page 1

[&]quot; UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS



CERTIFICATE OF ANALYSIS

CLIENT: WA DEPT. OF FISH & WILDLIFE

PO BOX 753

OMAK, WA 98841

DATE: 12/2/2005

CCIL JOB #: 0511083

DATE RECEIVED: 11/21/2005

WDOE ACCREDITATION #: C142

CLIENT CONTACT: BOB JATEFF

CLIENT PROJECT ID:

SPECTACLE LAKE REHAB

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

CCIL SAMPLE ID

METHOD

SUR ID

% RECV

0511083-01 0511083-01

EPA-8021 EPA-8270 SIM

TFT Terphenyl-d14 110 108 .

APPROVED BY:

FAX 425 356-2626

POST-REHABILITATION REPORT

Quincy and Burke Lakes

LOCATION: Grant Co.: Sec 14, 15 & 23 T19N R23E Grant Co; WDFW Quincy Wildlife Management Area about 6 miles south-southwest of Quincy, Washington.

DATE(S) TREATED: October 10-11, 2005

PURPOSE: Reduce numbers of undesirable species of fish and bullfrogs to the extent possible.

LISENCED APPLICATOR: Jeffrey W Korth

LAKE DESCRIPTIONS: note – the volumes of Quincy and Burke lakes had been re-calculated in 1993, resulting in a small change to Quincy Lake and a substantial change to Burke Lake. The old volumes were used in the 2005 pre-rehabilitation plans, but the error was found and the correct amount of rotenone was used in the 2005 treatment. The intended pre-rehabilitation plan target concentration of 2 ppm rotenone was accomplished in 2005.

1. WATER: Quincy Lake

Surface acres: 62.5

Depth: average 10 ft; maximum 26 ft

Volume: 629.0 acre feet

Weight of Water: 1,709,437,907 lbs

Connectivity: No surface connections; subterranean flows only, unk.cfs; inlet primarily from

West Canal; outlet to Dusty Lake.

2. WATER: Burke Lake

Surface acres: 70

Depth: average 15 ft; maximum 28 ft

Volume: 1,112.7 acre feet

Weight of Water: 3,024,506,010 lbs

Connectivity: No surface connections; subterranean flows only, unk. cfs; inlet primarily from

West Canal; outlet to Dusty Lake.

TREATMENT DESCRIPTION:

	Actual Rotenone used					
Water	Date	lbs @ conc.	Liquid	ppm		
1. Quincy Lake	Oct 10	2,530 @ 6.7 %	15 gal	2.0		
2. Burke Lake	Oct 10-11	4,455 @ 6.7 %	15 gal.	2.0		

Total powdered rotenone used = 6.985 lbs @ 6.7 % and 30 gal of liquid @ 5%. All powder slurried with lake water, and liquid sprayed in shallow waters.

Detoxification Procedures: treated waters naturally detoxified.

- No detoxification was necessary; all outflow was subterranean.

SPECIES OF FISH ERADICATED IN ORDER OF RELATIVE ABUNDANCE:

Species; observed abundance. Water Pumpkinseed sunfish; several hundred thousand, mostly less than 2 1. Quincy Lake inches and a few thousand at 3-4 inches. Yellow perch; tens of thousands, mostly less than 3 inches and a few hundred at 8-10 inches. Largemouth bass: about one thousand, mostly less than 3 inches, fewer than 100 larger (0.5-2 lbs). Bluegill; several hundred, mostly less than 2 inches, a very few larger (1 at 8 inches). **Rainbow trout**; less than 10 at 10-12 inches, poor condition (thin). Yellow perch; several hundred thousand, mostly less than 3 inches, no 2. Burke Lake large adults observed. Brown bullheads; several hundred, mostly less than 4 inches, a very few at 8-12 inches. Rainbow; none observed.

PHYSICAL CHARACTERISTICS OF THE LAKE DURING TREATMENT:

Weather – Mostly sunny, 5 mph southwesterly wind, air temp = 50-70's °F.

<u>Pre-treatment water quality parameters – Quincy Lake, 10 October 2005.</u>

Depth (m)	Water Temp	Dissolved Oxygen	pН	Conductivity
	(°C)	(mg/l)		(mu/l)
surface	14.35	9.6	9.79	948
3.0	14.16	9.6	9.76	947
5.0	13.87	9.4	9.86	948
7.2	13.72	9.5	10.12	946

Pre-treatment water quality parameters – **Burke Lake, 10 October 2005**.

Water Temp	Dissolved Oxygen	pН	Conductivity
(°C)	(mg/l)	-	(mu/l)
14.9		9.36	
14.6		9.30	
14.5		9.30	•
14.4		9.30	
14.3		9.20	
14.3		9.20	
	(°C) 14.9 14.6 14.5 14.4 14.3	(°C) (mg/l) 14.9 14.6 14.5 14.4 14.3	(°C) (mg/l) 14.9 9.36 14.6 9.30 14.5 9.30 14.4 9.30 14.3 9.20

Note – both lakes were well mixed; high pH and conductivity relative to other area waters, but par for Burke and Quincy lakes. Lowest recorded pH was 8.5 in the 1960-70's.

PRE- AND POST- TREATMENT MONITORING:

Impact to non-targeted organisms – Zooplankton were sampled for diversity and abundance just previous to treatment, six months post treatment, and will again be sampled 12 months post treatment. Samples are currently being processed at Eastern Washington University.

Liquid rotenone formulation longevity – Water samples were taken at both Quincy and Burke lakes 24 hrs and four weeks post treatment. VOC (EPA methods 8310 and 502.2) testing revealed naphthalene (6.2 μg/l), 2-methylnaphthalene (19 μg/l), 1-methylnaphthalene (13 μg/l), acenaphthylene (0.03 μg/l), acenaphthene (0.25 μg/l), and flourene (0.29 μg/l) in Burke Lake water sampled 24 hours after treatment. VOC (EPA methods 8310 and 502.2) testing revealed naphthalene (1.3 μg/l), 2-methylnaphthalene (4.0 μg/l), 1-methylnaphthalene (2.1 μg/l), acenaphthene (0.04 μg/l), and flourene (0.05 μg/l) in Quincy Lake water sampled 24 hours after treatment. The amounts of 70 other compounds possibly present in liquid rotenone formulations, including benzene, tolulene, phenol, xylene, and derivatives of these compounds, were below detection limits (0.02-3.0 μg/l, variously) in these same samples. The higher amounts of detected compounds at Burke Lake were likely due to samples that were taken in the area where the empty drums formerly containing rotenone had been rinsed per the label disposal instructions. The amounts of all the aforementioned compounds were below detection limits four weeks after treatment.

Period of Toxicity – unknown; outside circumstances prevented bio-assay before winter conditions occurred. Probably less than four weeks based on past experience at these and other waters and given weather and lake conditions post-treatment.

DESCRIPTION OF TREATMENT AND OTHER COMMENTS:

Treatment: A fall treatment for the 2005 treatment of Burke and Quincy Lakes was chosen because seeps and flows in the system would be at a relatively low ebb, and lake levels are low after summer evaporation. A spring rehab would have risked early spawning of the yellow perch in the system. All target species should have been finished spawning by mid October with the possible exception of the sunfish. However, centrarchid eggs hatch in a few days and would have then been susceptible to rotenone poisoning. In addition, fall treatment is mandatory if catchable-sized fish are to be used in the spring for the March 1 opening day.

The October 2005 treatment of Burke and Quincy Lakes was accomplished over a two-day period, although the treatment would have been finished in a single day but for equipment malfunctions. Both slurried powdered rotenone and liquid rotenone were used, the amount of each depending on lake volume, depth, and the physical characteristics of the littoral areas. All rotenone was hauled by truck the day of the treatment. Treatment with slurried powder was done simultaneously for both lakes. Pumper boats were used to slurry and distribute the powder over deeper areas of the lakes. One pumper boat was assigned to Quincy, and two pumper boats worked on Burke. The powdered rotenone portion of both treatments was completed the first day. Liquid rotenone was sprayed via airboat in the areas too shallow to effectively access by boat and outboard motor. A fuel pump failure on the airboat delayed its use the first day, so liquid rotenone was sprayed by airboat on Quincy the first day and Burke the second day.

Environmental conditions for rotenone treatment were very good. Water temperature was cool enough to retain a reasonable length of toxicity, and warm enough that fish were still fairly active. The lakes had turned over and were well mixed. During the liquid rotenone treatment of Burke Lake on the second day, only bullheads were still observed to be alive but stressing. No live fish were observed the second day during a thorough recon of Quincy Lake. While a near complete eradication of fish in these waters was possible, evaluation of a totally complete kill has always been hampered by the immediate and illegal introduction of new fish by anglers. However, the effectiveness of the treatment has never been in question as judged by fingerling to yearling survival evident on subsequent opening days.

Weak Links: Emergent vegetation was thick and extensive at the outlet of Burke Lake. In addition, beaver dams precluded entry so that all water could not be reached by the airboat. On the second day, above and below the road/culvert was treated by hand with a slurry of powdered and liquid rotenone. Water and rotenone leaving Burke Lake ended in a pool a short distance below the road and flow thereafter was subterranean. Had a Hydraulic Permit been requested to remove the beaver dams and clear some of the vegetation, treatment of this area could have been more thorough. It is possible that some small fish, especially bullheads, might have survived in this area. The inlet spring of Burke Lake should also receive extra attention and probably hand treatment.

Bullheads were not known in this system previous to this treatment. While their numbers were relatively small and they evaded detection, some no doubt survived because the treatment was not designed specifically to eradicated bullheads. Increasing the final concentration to 4 ppm and splitting treatment over 2-3 days would have made this a more effective project. At least 2 ppm is recommended to remove bullheads. The distribution of rotenone during any treatment is often uneven, leaving areas less toxic than supposed. With bullheads, a first treatment often stresses the fish, bringing them to the surface for a second exposure.

Cost: About 21 man-days (man-day = 8 hrs) were required to complete the rehabilitation of Burke and Quincy Lakes from pre-rehabilitation proposals to mop-up and reports (not including program planning, meetings, equipment procurement, etc common to all rehabilitations done this FY). Treatment alone required a crew of 8 and totaled 15 man-days spread over 1.5 days. Total cost of the project (rotenone, labor - \$268/day, travel, expendable equipment) was approximately \$23,000, including \$17,100 for rotenone (powder @ \$1.65/lb @ 5%, delivered; liquid @ \$55/gal).

Epilogue: Burke and Quincy lakes were each stocked in February 2006 with 5,000 catchable-sized rainbow trout (10-12") for the March 1 opener. These provided at least a mediocre fishery with catch rates at about a fish per hour (2.4-3.1 fish/angler). Fingerling rainbow trout stocking was delayed until May 2006 to allow zooplankton and insect populations to recover. Both waters were part of an ongoing productivity study conducted by Eastern WA University. The study seeks to evaluate and match secondary productivity with trout growth and condition. The 2007 season fingerling-based fisheries are much anticipated by anglers and biologists alike.

INVOICE TERMS: NET 30 DAYS



CCI ANALYTICAL LABORATORIES, INC. 8620 HOLLY DRIVE, SUITE 100 EVERETT, WASHINGTON 98208 425-356-2600 FAX 425-356-2626 Invoice Number:

25727

Invoice Date:

Nov 3, 2005

CCI Job Number:

510076

Client PO:

Sold To:

JIM UEHARA

WA DEPT. OF FISH & WILDLIFE

MS: 43200 NRB

600 CAPITOL WAY NORTH

OLYMPIA, WA 98501

Client Project ID:

BURKE AND QUINCY LAKES 10/14

Quantity	Test Code	Description	Unit Price	Amount
2 2	8021 PAH	BTEXM BY EPA-8021 PAH'S BY EPA-8270SIM	70.00 170.00	140.00 340.00
	:			
				•
			7	
		•		

Total Invoice Amount

480.00



CLIENT: WA DEPT. OF FISH AND WILDLIFE

1550 ALDER ST. NW EPHRATA, WA 98837 DATE:

11/1/05

CCIL JOB #:

510076

CCIL SAMPLE #:

DATE RECEIVED: 10/18/05

WDOE ACCREDITATION #:

C142

CLIENT CONTACT: JEFF KORTH

CLIENT PROJECT ID: CLIENT SAMPLE ID:

BURKE AND QUINCY LAKES

#1-#3 BURKE LK 10/14/05 1830 (

BENZENE TOLUENE EPA-8021 ND(<1) UG/L ETHYLBENZENE EPA-8021 ND(<1) UG/L ETHYLBENZENE EPA-8021 ND(<1) UG/L ETHYLBENZENE EPA-8021 ND(<1) UG/L EPA-8021 ND(<1) UG/L EPA-8021 ND(<1) UG/L EPA-8021 ND(<1) UG/L EPA-8021 ND(<3) UG/L NAPHTHALENE EPA-8021 ND(<3) UG/L I 11/1/05 CCN 1-METHYLNAPHTHALENE EPA-8270 SIM EPA-8270 SIM IPUG/L ACENAPHTHYLENE EPA-8270 SIM IPUG/L III/1/05 CCN III/1/05 CCN ACENAPHTHYLENE EPA-8270 SIM IPUG/L III/1/05 CCN II		DATA RESUL	_TS			
BENZENE TOLUENE EPA-8021 ND(<1) UG/L TOLUENE EPA-8021 ND(<1) UG/L ETHYLBENZENE EPA-8021 ND(<1) UG/L EPA-8021 ND(<1) UG/L EPA-8021 ND(<1) UG/L EPA-8021 ND(<1) UG/L EPA-8021 ND(<1) UG/L EPA-8021 ND(<1) UG/L EPA-8021 ND(<3) UG/L NAPHTHALENE EPA-8021 ND(<3) UG/L I-METHYLNAPHTHALENE EPA-8270 SIM EPA-82						
TOLUENE EPA-8021 ND(<1) UG/L 10/20/05 LAP EPA-8021 ND(<3) UG/L 10/20/05 LAP EPA-8021 ND(<3) UG/L 10/20/05 LAP EPA-8021 ND(<3) UG/L 11/1/05 CCN 1-METHYLNAPHTHALENE EPA-8270 SIM 13 UG/L 11/1/05 CCN 2-METHYLNAPHTHALENE EPA-8270 SIM 19 UG/L 11/1/05 CCN ACENAPHTHYLENE EPA-8270 SIM 19 UG/L 11/1/05 CCN ACENAPHTHENE EPA-8270 SIM 0.25 UG/L 11/1/05 CCN EPA-8270 SIM 0.25 UG/L 11/1/05 CCN FLUORENE EPA-8270 SIM 0.29 UG/L 11/1/05 CCN PHENANTHRENE EPA-8270 SIM ND(<0.02) UG/L 11/1/05 CCN ANTHRACENE EPA-8270 SIM ND(<0.02) UG/L 11/1/05 CCN FLUORANTHENE EPA-8270 SIM ND(<0.02) UG/L 11/1/05 CCN EPA	ANALYTE	METHOD	RESULTS*	UNITS**		ANALYSIS BY
BENZO[K]FLUORANTHENE EPA-8270 SIM ND(<0.03) UG/L 11/1/05 CCN BENZO(A)PYRENE EPA-8270 SIM ND(<0.02)	TOLUENE ETHYLBENZENE XYLENES NAPHTHALENE 1-METHYLNAPHTHALENE 2-METHYLNAPHTHALENE ACENAPHTHYLENE ACENAPHTHENE FLUORENE PHENANTHRENE ANTHRACENE FLUORANTHENE PYRENE BENZO[A]ANTHRACENE CHRYSENE BENZO[B]FLUORANTHENE BENZO[K]FLUORANTHENE BENZO(A)PYRENE INDENO[1,2,3-CD]PYRENE	EPA-8021 EPA-8021 EPA-8021 EPA-8270 SIM EPA-8270 SIM	ND(<1) ND(<3) 6.2 13 19 0.03 0.25 0.29 ND(<0.02) ND(<0.02) ND(<0.02) ND(<0.02) ND(<0.02) ND(<0.03) ND(<0.03) ND(<0.03) ND(<0.03) ND(<0.03) ND(<0.02)	UG/L UG/L UG/L UG/L UG/L UG/L UG/L UG/L	10/20/05 10/20/05 10/20/05 10/20/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05	LAP LAP LAP LAP CCN CCN CCN CCN CCN CCN CCN CCN CCN CC

^{* &}quot;ND" INDICATES ANALYTE NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES

^{**} UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS



CERTIFICATE OF ANALYSIS

CLIENT: WA DEPT. OF FISH AND WILDLIFE

1550 ALDER ST. NW EPHRATA, WA 98837 DATE:

11/1/05

CCIL JOB #:

510076

CCIL SAMPLE #:

· 2

DATE RECEIVED:

10/18/05

WDOE ACCREDITATION #:

C142

CLIENT CONTACT: JEFF KORTH

CLIENT PROJECT ID:

BURKE AND QUINCY LAKES

CLIENT SAMPLE ID:

#4-#6 QUINCY LK 10/14/05 1815

	LAN A MEDUL	10			
ANALYTE	METHOD	RESULTS*	UNITS**	ANALYSIS DATE	ANALYSIS BY
BENZENE TOLUENE ETHYLBENZENE XYLENES NAPHTHALENE 1-METHYLNAPHTHALENE 2-METHYLNAPHTHALENE ACENAPHTHYLENE ACENAPHTHENE FLUORENE PHENANTHRENE ANTHRACENE FLUORANTHENE PYRENE BENZO[A]ANTHRACENE CHRYSENE BENZO[B]FLUORANTHENE BENZO[K]FLUORANTHENE BENZO(A)PYRENE INDENO[1,2,3-CD]PYRENE DIBENZ[A,H]ANTHRACENE	EPA-8021 EPA-8021 EPA-8021 EPA-8021 EPA-8270 SIM EPA-8270 SIM	ND(<1) ND(<1) ND(<1) ND(<3) 1.3 2.1 4.0 ND(<0.02) 0.04 0.05 ND(<0.02) ND(<0.02) ND(<0.02) ND(<0.02) ND(<0.02) ND(<0.02) ND(<0.03) ND(<0.03) ND(<0.03) ND(<0.03) ND(<0.03) ND(<0.03) ND(<0.02) ND(<0.02)	UG/L UG/L UG/L UG/L UG/L UG/L UG/L UG/L	10/20/05 10/20/05 10/20/05 10/20/05 10/20/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05 11/1/05	LAP LAP LAP LAP CON
BENZO[G,H,I]PERYLENE	EPA-8270 SIM	ND(<0.03) ND(<0.02)	UG/L UG/L	11/1/05 11/1/05	CCN CCN

^{• &}quot;ND" INDICATES ANALYTE NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES

APPROVED BY

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^{**} UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS



CLIENT:

WA DEPT. OF FISH AND WILDLIFE

1550 ALDER ST. NW

EPHRATA, WA 98837

DATE:

11/1/05

CCIL JOB #:

510076

DATE RECEIVED:

10/18/05

WDOE ACCREDITATION #:

C142

CLIENT CONTACT: JEFF KORTH

CLIENT PROJECT ID:

BURKE AND QUINCY LAKES

SURROGATE RECOVERY

CCIL SAMPLE ID	ANALYTE	SUR ID	% RECV
510076-01 510076-01	EPA-8021 EPA-8270 SIM	TFT TERPHENYL-d14	106 66
510076-02 510076-02	EPA-8021 EPA-8270 SIM	TFT TERPHENYL-d14	110 70